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ABSTRACT

The areas of educational programs, their design and operation, their intellectual base, and their philosophic presumptions are examined. Part One discusses the nature of academic programs in colleges and universities: influences, purposes, and priorities: and the concept of curriculum and its origins, definition, and design. It is proposed that curriculum be approached as a problem in design rather than theory. Part Two presents three fundamental paradigms in the design of academic programs: (1) the traditional-academic curricula: (2) the social interaction-human service curriculum: and (3) the applied knowledge-socialization curriculum. Part Three proposes a technical approach to curriculum analysis, with design as a basis for analysis and planning. A "map" for design is given, comprehending content, context, and form as basic elements. This overall approach is considered unusual in that it does not look at curriculum first from a philosophical position, and then practically. (MSE)

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Problems of Curriculum Design in Higher Education: A Discourse and Dialogue in Three Parts

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Caracas, Venezuela

Part I

INTRODUCTION:

A North American academic who travels to another land must decide which pieces of intellectual baggage, that is to say, which ideas and practices, should be left at home. For our meetings it is important to distinguish our common interests, topics we share, from distinct differences, topics we can only compare. There are many unique, even provincial, features of universities, colleges, and other tertiary level institutions of the United States. We must set these aside for another time when comparative analysis is undertaken. Our attention is on issues we share. My guidance comes from J. Ortega y Gasset writing on The Mission of the University (1930) who urged his Spanish colleagues to "look abroad for information, not for a model."

Before addressing our common interest in academic programs I want to call attention to several ways in which the U.S. colleges and universities differ markedly from the rest of the world. First, with respect to the organizational structure each college or university is a separate corporation chartered by a state not the federal government. A Board of Trustees is directly responsible for the operation of each institution. That Board represents the public interest and its members come from public life, business, other professions, social service organizations, alumni, and sometimes clergy. The faculty are not usually present on the Board. They have a Senate or Council that reports to the President who is employed by the Board not elected by the faculty. You can see immediately that this corporate form of

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organization with an emphasis on administrative responsibility and with the faculty separated from many aspects of management is quite unlike other systems of higher education. The absence of a central ministry and the focus of state interests on finances is distinctive. Except for the value of careful comparison there is little reason for carrying the form and structure of administration abroad.

In a similar way, the financing of higher education in the North American system has little applicability abroad. Students as individuals are called upon to pay between 60 and 80 percent of the costs of their education in the form of tuition fees. However, to help poorer students meet these charges, an elaborate system of public grants and loans has been constructed by state and federal governments. Thus the largest share of public funds is made available not to institutions but to individual students to meet about 2/3 of their education. The remaining costs beyond student payments are met by each institution from gifts, earnings on endowments, or special grants. Funding for education comes from several sources and even research is financed by a mixture of funds. The governments, state and federal, generally support research projects of three to five years duration. There are very few national research laboratories or institutes that receive continuous funding.

A consequence of these features of U.S. institutions, (a corporate organization and funding from many sources) is that the functions of planning, budgeting, and management of each institution have great importance. The North American experience in these activities has some value elsewhere in the world, in Europe for example through OECD, but it simply does not fit most other systems.

It is the area of educational programs, their design and operation, their intellectual base, and their philosophic presumptions that brings us to common ground. We must all answer the great questions of the philosophers:

What knowledge is of most worth?

Can the meaning of virtue and the nature of right action be taught?

How can man be moved to learn?

And the more contemporary queries set up by Marx:

Is materialism the way to freedom on mind and spirit? or Robert Hutchins: Where is the unity in knowledge?

How these questions can be addressed in the settings of teaching and learning is the province of the curriculum. In our three meetings together I will deal with three major topics:

Part I--The Nature of Academic Programs in Colleges and Universities.

Part II--Three Fundamental Paradigms for Academic Programs.

Part III--A Technical Approach to Curriculum Analysis.

These comments are intended to stimulate discussion among faculty who are thinking about their own field, faculty who are working with people from other disciplines, academic leaders who are responsible for creating new programs, and those who are revising old programs.

Terminology

The following meanings will be used in this paper:

Curriculum will be defined by the logic of the paper but it is also referred to here as an "academic program," "plan of study," or "course of study." We use the terms in a general sense but recognize that there are many curriculums in each college or university.

Higher education includes all types of formal study beyond the secondary school. It will also be referred to as tertiary level education, postsecondary education, or advanced education.

Faculty members include all persons in the professional role of researcher, teacher, scholar and appointed to the staff of institution. The terms, professoriate professional educators, and academics, will also be used.

Policy refers to established guidelines that set the direction of most decisions and actions undertaken by individuals within a system.

PART I -- The Nature of Academic Programs in Colleges and Universities

A -- Influences, Purposes, and Priorities in Academic Programs

1 -- Sources of Influence on the Postsecondary Curriculum.

We readily recognize that no academic program stands alone. It is set in a context made up of beliefs and events that come out of the past, of happenings that surround it, and of expectations about what it will bring in the future. It is not often recognized, however, that the influence pattern is constantly changing. This condition gives each academic program the qualities of a living system.

Some of the influences originate with individuals who come to participate in the curriculum. How students perceive themselves and their futures produces a set of expectations they bring to the learning situation. Other influences come directly as pressures from society itself; economic, political, or social pressures. These influences cannot be ignored but neither can they be accepted without examination. It is the task of each professional academic to analyze such contextual or environmental forces and translate them into educationally significant terms.

Again, the observation of Ortega is appropriate, "education depends far more on the atmosphere of national culture in which it is immersed than it does on the pedagogical atmosphere created artificially within

it. A condition of equilibrium between inward and outward pressure is essential. . . ." To this I add the individual influences which shape student expectations. Taken together this means that academics have a responsibility to not only analyze and translate the external influences but also to develop a creative response in the form of a curriculum. The approach to academic programs that is presented in these pages rests on this idea that in your country and in mine professional academicians are accountable to the society for a creative response through the curriculum to contemporary conditions. Asa Briggs has put this accountability in more sophisticated terms: " . . . the University must now take on that overall cybernetic function . . ." of analyzing in its own independent way the needs of society and feeding back that information in the form of educational programs (CERI 1972).

To sharpen our attention on this topic it will be helpful to review the most common statements of the purpose of college level curriculums in various fields.

2 -- Purposes of the Postsecondary Curriculum.

A curriculum is not an accidental phenomenon but a collection of experiences that are intended to produce effects, to certain ends. The intention is usually contained is a brief statement, "The purpose of this academic program is:"

a) "to train people to a required level of competence in a particular field of economic activity." Career education, military training, preparation for highly skilled activities in public administration are the type of programs that follow this purpose. Eisner and Vallance label this approach as the "curriculum as technology."

b) "to prepare people to act in morally responsible ways." Up until this century almost all education emphasized virtuous action above all other purposes. This is the "social reconstructionist approach."

c) "to inculcate knowledge in its most advanced form and to develop the processes for acquiring knowledge." The "cognitive development" approach is most characteristic of the twentieth century.

d) "to cultivate the essential human trait of rationality and to know the heritage that supports it." This is the classical form of academic emphasis on habits of the mind, the skills of rhetoric and logic, and the humanistic literary tradition.

e) "to promote the personal development of an individual to the fullest extent in all areas mind, senses, spirit." This highly personalized approach is called the "self actualization" concept of the curriculum by Eisner and Vallance. Its existential qualities mark it as the most modern statement of curricular purpose.

You will notice that these five statements are arranged in a rank order based on the degree of certainty with which the ends or outcomes are known. The discussion of amount of uncertainty a curriculum can tolerate is a basic step in trying to design or restructure a curriculum.

3 -- Priorities

In looking at the five kinds of statements it is also useful to think about the question of, "How many different purposes can a single academic program or curriculum serve?" There are two sources of difficulty for many academic programs. One arises because too many purposes are attached to the same program. The second comes from a failure to set forth clearly which purpose has the top priority.

B -- The Concept of the Curriculum: The Idea and Its Origins.

1 -- Notes on the Origins.

While it is clear that something like a plan of study emerged in the medieval university with the trivium and quadrivium this was no more than a loose collection of subjects that most people studied. More often the curriculum was held in the mind of each scholar and students moved from professor to professor to construct their own program. Authority in the form of orders from the Pope or an emperor occasionally prescribed a set of studies that would produce the kind of administrators or legal experts the royal administration required.

It was in the Scottish universities, Glasgow in 1633, that the modern use of the term curriculum appeared. The idea of a series of related courses, taken in a sequence, similar in content irrespective of who taught the classes, and directed at a particular kind of certification was a product of the Scottish Enlightenment (Phillipson 1975). Elsewhere in the Western world at that time students followed a poorly defined path of study. In Spain between 1550 and about 1670 the universities of Castile and Aragon enjoyed very high enrollment with about 5.4 percent of the 18 year olds matriculating. But only one out of five graduated. Students were affiliated with a faculty and those individuals each determined what they would teach (Kagan, 1975). In the German universities students also studied the faculty rather than a curriculum. At some periods the content of the examination for the baccalaureate or magister degree determined what a student selected for his own study. There was little that could be called a curriculum except in Scotland. It was not until the coming of

science and the rise of technology that the curriculum as an idea became important. After 1800 the natural sciences influenced the whole structure of study and produced the courses, departments, disciplines, credits, and certifications we now use. The point of importance in this history is that the concept of a curriculum is a relatively recent idea in the long history of human learning.

2 -- Toward a Definition of the Curriculum in Higher Education.

The history of the concept we now call "curriculum" explains why there are still so many difficulties in understanding and applying it.

a) To begin with there is no single ideal or exemplary curriculum which can be seen as a model. Each faculty must develop its own.

b) There are also technical deficiencies to the terminology. For example, we know that a good engineering program requires a strong supporting structure in mathematics, physics, and chemistry. We have no term to describe such a constellation of related courses.

c) The mechanisms by which a curriculum can be changed are poorly developed. The experience of the past twenty years in the U.S. and in Europe suggests that the easiest way to alter the curriculum is to create new institutions. Studies of change within institutions by Blackburn (1976), Dressel and DeLisle (1969), and Levine (1978) show almost no change in traditional programs. But new institutions like the community college or the specialized proprietary schools have become the medium for introducing new curricular options.

d) Finally, there is no single theory or group of theories to offer a comprehensive framework for postsecondary studies. On

this point there is a marked distinction between higher education and the elementary or secondary levels. In the schools, as compared to the university, the well researched and highly differentiated theory of developmental psychology provides a single, powerful force on the curriculum. The direction for education is clear, children are growing into adults. The essential process is clear, they are being socialized to a culture and to an adult world. With the direction and process clear it is possible to specify objectives for the curriculum. The process also involves several dimensions of growth; identity, personality, morality, and intellect, so the schools have a broad responsibility. The interest of the state in having well informed but compliant citizens is also clear. Because there is a good single theoretical base for schooling at the lower levels we have been misled into an exhausting search for a single theory to support the curriculums of higher education.

Even a brief consideration of the nature of higher education lets us see the problems of finding a single theoretical base for the curriculum. Higher education is focused on and keyed to knowledge in it many-sided, tentative impersonal form organized around the disciplines. Faculty are specialized within these disciplines and the university is administered around the departments which reflect the disciplinary structure. The students are adults who attend voluntarily to achieve their own goals. To meet these conditions a theory for the curriculum would have to include an impossible range of explanations:

--the theories of knowledge, knowing, learning, and systems of proof

--the theories about mankind, the nature of motivation, the purpose of existence, the dynamics of the mind

--the theories of institutions and organizations, of the academic profession, and the supporting units.

All these elements would have to be linked together in a reasonable system of interrelated principles and propositions. The search for a comprehensive theory to guide the postsecondary curriculum should be put aside in favor of a more useful concept.

C -- The Concept of Design

The concept of "design" rather than theory has guided action in the arts and in engineering. It fits very well with the situation in higher education. A design problem usually involves selection of a few components from a large pool of resources. What is omitted may be as important as what is included. These components are then interrelated or arranged in a particular way. When the selection and arrangement are completed the resulting system or object offers something more significant than the mere aggregation of parts. The materials or medium, the form or arrangement, and the context or surrounding environment constitute the essentials of design.

The great value of the design concept lies in its comprehensive neutrality. The curriculum "designer" as opposed to the theorist is free to look at each component on its own merits, large classes or small classes; a calendar of semesters, quarters, or mixed terms; laboratory, tutorial, or lecture method--their value is determined by their place in the final design. By taking a "design" approach questions are moved to a lower level of abstraction and focused sharply on operational issues.

It is surprising how many educational thinkers and writers have touched the edge of the design idea. Brcudy (1977) observed

"Curriculum theory is a theory about mix." "Curriculum becomes involved in the basic choice of creating a single farmework for all disciplines," (Wilson 1977). "Theory is inadequate to the tasks of curriculum" (Schwab 1975). Not surprising is the fact that it took a Nobel laureate to see the full implication of design. Herbert Simon in the 1968 Compton Lectures said, "Engineers are not the only professional designers. Everyone designs who devises courses of action aimed at changing existing situations into preferred ones . . . . Design is at the core of all professional training: It is the principal mark that distinguishes the professions from the sciences. Schools of engineering, as well as schools of architecture, business, education, law, and medicine are all centrally concerned with the process of design" (Simon 1969). He notes further, "Design is concerned with how things ought to be, with devising artifacts to attain goals." The essential process is echoed in the lines of an artist, Christopher Alexander, in Notes on the Synthesis of Form (1964): Design is "the process of inventing . . . things which display new physical order, organization, form, in response to function." The notion of invention as opposed to discovery is really the crux of the argument developed so far. A theory of curriculum implies discovery: Curriculum as design implies invention. "The essence of the natural sciences is the discovery of hidden patterns of partially concealed ones." "Natural phenomena have an air of 'necessity' about them in their subservience to natural law, artificial phenomena have an air of 'contingency' in their malleability by the environment." (Simon, 1969).

By putting these considerations together we can reach a working definition of a curriculum: A curriculum is an educational

design for student experience rooted in the specialized knowledge of the faculty and intended to produce certain outcomes.

Summary and Issues for Discussion

Although national systems of higher education differ in organization and financing they share similar problems in constructing the curriculums. Academic programs are influenced but not determined by the cultural, political, and economic environment. Professors and academic leaders have a responsibility for analyzing that environment and reading independent conclusions about the effects on education. They are accountable for producing a creative response to that environment in the form of a curriculum. A good curriculum can serve only a few purposes and the priority must be clear. The idea of the curriculum as an organized learning design is relatively new, perhaps a century old. The approach to curriculum as a problem in design rather than as an expression of a theory is proposed in this paper.

Questions:

What are some of the social, political, and economic influences on the curriculum in Venezuela?

Do these affect different academic programs in different ways?

Is there a need for new institutions in Venezuela to provide a place where new curriculums can be introduced?

What is the role of each group in curriculum design, faculty, students, administrators?

PART II -- Three Fundamental Paradigms in the Design of Academic Programs.

A -- The Utility of the Concept of Curriculum Design.

In previous sections the argument has been developed to demonstrate that the curriculum in colleges and universities can be viewed as a problem in design. The design approach in education is very similar to the views artists and engineers take of the projects they develop. There are constraints and there are resources in the materials, techniques, and situations in which they work. The resources are selected and arranged in a pattern which produces a systematic interrelationship of the parts. This is exactly the situation in the case of curriculum design. There are resources such as instructional techniques, a body of knowledge, a faculty trained in a certain way, and an institutional setting. There are external factors in the economy and culture. In the fields of art and engineering it is customary to identify three basic elements CONTEXT, CONTENT, and FORM.

We have also made the point that academics in postsecondary education have a broader set of responsibilities than persons practicing in the lower school structure. The professor is expected to make an independent analysis of the environment, the "context," interpret the effects it may have on the academic program, particularly "content," and then create a program in suitable "Form" to enhance individual learning. The product of this process of design is an academic program, a curriculum.

Thus far we have used the term, curriculum, in its most general form. But there are actually many different plans of study in even the smallest institution. Faculty in various disciplines have already had a great deal of experience with designing programs. Many of them are working very well and we would be foolish to ignore them. That experience has produced several typical designs and each is presented as a paradigmatic form in the pages that follow.

B -- Curriculum Designs as Paradigms

The choice of the term "paradigms" to describe faculty approaches to the curriculum is deliberate. One alternative word might have been curricular "models" but, apart from the fact that the word is overused, it connotes a completed design rather than the intellectual orientation that undergirds it. It was T. S. Kuhn who gave the concept of a paradigm its fullest meaning. It is adapted here from the "sociological sense of the term" developed in the Postscript to the second edition. A paradigm includes "an entire constellation of beliefs, values, techniques, and so on shared by members of a given community." He describes such academic communities:

> A scientific community (and a scholarly one as well) consists, in this view, of the practitioners of a scientific speciality. To an extent unparalleled in most other fields, they have undergone similar educations and professional initiations; in the process they have absorbed the same technical literature and drawn many of the same lessons from it. Usually the boundaries of that standard literature mark the limits of a scientific subject matter, and each community ordinarily has a subject matter of its own. There are schools in the sciences, communities, that is, which approach the same subject from incompatible viewpoints. But they are far rarer there than in other fields; they are always in competition; and their competition is usually quickly ended. As a result, the members of a scientific community see themselves and are seen by others as the men uniquely responsible for the pursuit of a set of shared goals, including the training of their successors. Within such groups communication is relatively full and professional judgment relatively unaminous. Because the attention of scientific communities is, on the other hand, focused on different matters, professional communication across group lines is sometimes arduous, often results in misunderstanding, and may, if pursued, evoke significant and previously unsuspected disagreement (Kuhn 1970, 77).

The "members" of a given community in the case of the curriculum design are the faculty who are responsible for the program of study. Students have an influence but only after the curriculum is operating. Students can only react, a circumstance which creates that paradox of academic

life: curriculums are created by faculty who never experience them for students who have no part in their creation.

Of course, the curriculums created by faculty do not reflect completely all the elements of design; context, content, and form. They do tend to concentrate on certain aspects which become assumptions. Faculty are prepared by personal experience to present basic assumptions and about the knowledge of their field, its epistemology, and about the way it should be learned and taught. In the illustrative paradigms, rationale reflects a part of both "content" and context". Psychology reflects "content" and pedagogy reflects elements of form.

C -- Three Common Paradigms of Curriculum Design.

1 -- (Paradigm I) The Traditional-Academic Curriculums

The rationale or complex of values and organized knowledge that supports this traditional approach is grounded in the sciences, and philosophies of idealism. Theoretical knowledge precedes and undergirds practical knowledge in all its forms. Abstract knowledge is the highest form of knowledge. Because good theory is enduring it is therefore ultimately most useful. The world is best understood in terms of abstract knowledge as it is embodied in the disciplines.

The psychology of learning turns on the rational process of man; logic, the careful use of language, and a good grounding in mathematics. Because students learn basic knowledge and the methods of verifying it before they are introduced to issues or specific applications they gain a large general benefit, irrespective of the field in which they eventually practice.

The pedagogy is familiar. To begin with there is an emphasis on the formal, classical structure of all knowledge, in the sciences as well as in the arts. Presentation technique or instructional

method is relatively unimportant because the professor is in the role of an exemplar, an intellectual role model for his or her discipline. Most aspects of application are postponed until after the degree is received although carefully arranged laboratory experiences, research problems, and papers may be part of class requirements. For students who respond well to this curriculum the process here is one of self-determined exploration and experimentation in the enriched and risk-free environment of the university. The diversity of experience is expected to liberate the person from the limiting preconceptions of family, school, and social background. It is expected to cultivate creativity and intellectual integrity. There is a second aspect to the student learning process involving criticism of work, analysis of thought, and encouragement by faculty. The ultimate step is the integration of experience and the synthesis of knowledge to make the individual more capable of authentic expression.

Highly individualized and multi-dimentional, this liberating approach depends on associative rather than linear patterns of knowledge acquisition.

The intended outcome of this kind of educational experience is a creative intellect and an independent personality marked by self-confidence and skepticism. It is most characteristic today among so-called radical students and those working in fine arts or humanities. In the U.S. most pre-professional programs, pre-medicine, pre-law, pre-theology, and pre-academic follow this design.

2 -- (Paradigm II) The Social Interaction-Human Service Curriculum.

This particular curriculum is seldom described in the literature. It is of recent origin because it emerged only as the social sciences developed a full range of theory and as national economics

directed more resources to the service sector. The rationale turns about the idea that the human and social consequences of knowledge in its applications hold special significance in the modern world. If the relationship of man to knowledge and technology is ignored, the potential harm is so enormous that direct attention to the human dimensions of knowledge is required. Those interested in helping others and serving the common good carry the responsibility for this study.

The psychology of learning in this case comes from the concept of symbolic interaction developed in the sub-speciality of social psychology. Other contributions come from sociology and cultural anthropology. Involvement and interaction with people lead to a kind of gestalt into which scientific knowledge and techniques can be woven. There is an idea of learning about one's self through reactions of others in this curriculum.

The pedagogy emphasizes situational involvement with special categories of persons, children, aged, mentally ill, by means of field work, practicums, observation, etc. Instruction tends to avoid didactic methods and favor group experiences which are self-revealing, affective in tone, and individualized.

For students the process here is one of discovering the dimensions of self by working with others, most often in controlled situations of helping and service. There is also an expectation that understanding, empathy, and acceptance will be recognized. A reflective learning takes place. By working with children, the handicapped, disadvantaged, ill, or needy it is possible to perceive and define more clearly one's strengths and weaknesses. Such definitions provide guidelines and purposes for approaching formal knowledge. Knowledge is significant when it can be integrated with personality to improve confidence, competence, and skill.

Typical fields which follow this approach are teaching, nursing, counseling, social work, recreation, and similar human service specializations.

3 -- (Paradigm III) The Applied Knowledge-Socialization Curriculum.

The rationale emphasizes that reality exists when knowledge is put to use. Since the world is organized around complex task centers for using knowledge those employment roles should provide the basis of the curriculum. Man is defined in terms of his work, his actions, his production. Pragmatism is the dominant philosophy. Because contemporary technology is so intricate, this view holds, there is neither time nor need for a full theoretical background. The values of importance are utility, skill or competence, working combinations, "satisficing" solutions.

The psychology of learning points to competency, often at various levels, as the objective. Stated as behavioral objectives these competencies become the common, visible, and thoroughly understood goals of both students and teachers. The experience of schooling is not valuable in itself but only an instrument to a goal.

The pedagogy concentrates on construction of real-life situations which are then segmented for learning purposes. Practice precedes and determines what theory is relevant. Laboratory work, simulations, and hands-on projects lead to internships, traineeships, or on-the-job training and finally to first level responsibilities in "real" situations. For students the process is one of acquiring a certified professional or occupational role. "Becoming" by conscious adoption of the values, behaviors, skills, and knowledge attached to and expected of persons in that role is a large factor in the expectations of American college students. Theoretical knowledge is studied not

for its intrinsic worth but only as a means to developing competence in the applied aspects. The collegiate experience is viewed as preparatory to real-life and tested for how well it replicates those future circumstances. Practitioners, not professors, are the exemplars and role models. Students characerized by these expectations tend to be found in; business, engineering, military sciences, medicine, and law. Short cycle training programs and many continuing education programs conform to the paradigm.

The distinctive characteristic of faculty training in the modern era has been a high degree of specialization in a discipline. Because of this fundamental orientation faculty usually direct most of their atention to only a small part of the curriculum, the courses they teach. No one would propose to change the pattern of specialization because it is beneficial to both learning and research.

We must add, however, new skills and viewpoints in order that faculty may gain a professional view of the whole range of academic programs at their own institution. When faculty members gather together as the educational body of a college or school they have a responsibility for all the programs that are offered by that school. There is a need for technique and conceptual tools by which a faculty member in one field of study, let us say chemistry, can examine the academic program in another quite different area of the university, let us say teacher preparation. The chemist who is familiar with our paradigms would be aware that the rationale, psychology, pedagogy, and student expectations would be very different in education.

An illustration of one aspect of these paradigms is contained in the attached Table 5. We can see that the "academic-traditional" majors spend a smaller percentage of time in specialized study while the applied fields have a much larger percentage of requirements in the major or specialized courses.

Table 5. Percentage of bachelor's degree programs in eight different subject areas requiring varying amounts (in deciles) of the undergraduate curriculum to be spent on the major

	Subjects							
Percentage of time spent on major	I *Humanities*	I *Social science*	I *Science*	III *Business*	II *Education*	III *Engineering*	III *Health science*	III *Trade and technical arts*
1–10								
11–20	5	9	2	1	2		1	
21–30	39	49	21	18	18	7	4	5
31–40	39	26	28	30	18	7	8	
41–50	12	12	29	22	23	6	17	5
51–60	2	2	14	20	25	12	19	23
61–70	2	2	5	9	12	24	25	23
71–80	1		1	1	3	24	24	27
81–90						20	2	18
91–100						1		

Source: Catalog Study, 1976. LEVINE 1978 p. 32

By examining the design of a curriculum each faculty member can construct a better program for his own field and examine more accurately the curriculums in other fields.

Topics for Discussion

Are there additional paradigms not covered by these three illustrations? Do professional and graduate programs also show paradigmatic features? Are two-year programs so different that they do not fit this analysis? Should students be counseled on the basis of how well their personality fits the curriculum?

PART III -- A Technical Approach to Curriculum Analysis.

A -- Design as a Basis for Analysis and Planning.

In the second section of this discussion of the curriculum or academic program the idea has been developed to suggest that the concept of "design" rather than "theory" is a more effective perspective. The curriculum in postsecondary institutions cannot be treated as a manifestation of theory because such a basis would have to be impossibly broad. The lesser abstraction, design, is aimed toward a more modest goal, operational effectiveness, and encourages a consideration of all the available resources. To illustrate the legitimacy of the "design" idea three paradigms of curriculum design were presented in their general form. The three paradigms can be useful to faculty in one field who are called upon to evaluate or participate in another field. They represent a normative set that is helpful with comparison.

But to be entirely useful the concept of design should offer still other possibilities. It would be especially valuable if the components of design could be developed in some detail. Such an elaborated view of design might function as a "map" for program construction and analysis. Indeed, Briggs (1972) has referred to the curriculum as a "map of learning." Under each of the components of design, CONTENT, CONTEXT, and FORM, we can identify features of the curriculum. This is not an esoteric approach but rather a systematic one based on material already substantiated by practice or research. The components of design are not invented. They are already there. Design consists in selecting and arranging them.

B -- A Representation of Curricular Design: A Map.

1 -- CONTENT or subject matter is always the first feature considered by faculty. The nature of knowledge in the field is of first importance to faculty because it represents the heart of their training. Faculty are also by nature learners with the result that the way of learning or psychological approach is important. Often a consequence of knowledge is a change in values or attitudes, the affective features. Finally there are often behavioral and cognitive outcomes as a consequence of study.

2 -- The CONTEXT is not often fully considered by faculty as they plan or review a curriculum. They are usually aware of only economic aspects like employment opportunities but not the social and cultural factors. Programs are offered and faculty practice in an institutional setting so the organizational climate has an influence on curriculum planning. There are also unaccountable influences on the way the curriculum is interpreted and the meaning given to it. For example, the student movements of the 1960's in the U.S. caused some fields like human services and social work to be highly valued as "humane" experiences while the traditional humanities were devalued. These are filtering and interpretive factors.

3 -- FORM includes all the features on which action must be taken to create a program. Resources in terms of faculty time and physical facilities must be allocated in some effective way. Student time must be distributed in some useful way. An instructional system of some kind always exists even though it may not be consciously planned. Then too, certain educational behaviors are expected of faculty and students. Finally, a curriculum is always constructed to lead to a conclusion, a short range outcome that signals completion of the phase.

PHILOSOPHY: Reflects Purpose, Meaning, Values of Program	REALISM	IDEALISM	EMPIRICISM	PRAGMATISM	EXISTENTIALISM
CONTENT					
I NATURE OF KNOWLEDGE: THE EPISTEMOLOGY OF A DISCIPLINE OR FIELD OF STUDY					
a) Structure of the Field: Concepts, principles, theory, organized information and conclusions	Formal organization of cognitive information. Architectonic form.	Intellectual concepts & rational abstractions in a theoretical hierarchy.	Knowledge developed and changed by systematic inquiry and rational proofs.	Transitory body of knowledge confirmed by utility.	Subjectively organized experience, affective as well as cognitive.
b) Methods of Establishing and Verifying Knowledge: Avenues of inquiry and systems of proof	Historico - logical analysis	Rational argument	Field based study toward tentative conclusions	Testing of operational principles in applied settings	Richness of description of experience and observation
c) Selected Fundamental Subsets of Knowledge to be Learned: Sequential and associative patterns	Learn bodies of organized information	Apprehend developed conceptual framework	Appreciate grounded theory and learn methodology	Learn technology and applied knowledge	Develop associated network of interpreted experience
d) Contingent and Related Areas of Knowledge: Prerequisites and conjunctive disciplines	Broad classical fields of knowledge accepted; humanities, natural sciences, etc.	Strong disciplinary emphasis with some interdisciplinarity acknowledged	Essential groupings around major problem areas: multi disciplinarity accepted	Technological groupings of subspecialties around specific issues	Pan-disciplinarity in varied patterns
e) The Ideal-typical Scholar in the Field: "Scholarly Excellence"					
NATURE OF LEARNING: THE PSYCHOLOGY OF THE DISCIPLINE					
a) Notions of the Learning Process: How the field is best apprehended	Language based; acceptance of authorities	Language based; critical acceptance and skeptical inquiry	Quantitative skills for data analysis over broad areas	Experiential base with quantitative problem solving approach	Experiential base and eclectic reaction
) Student Capability and Behavior: Learner roles and expectations, cognitive styles	Prescribed on basis of assumptions and selection of faculty	Prescribed but with elective options in majors	Prescribed in terms of knowledge but extended by active exercises	Elective on basis of utility and instrumental competence of student	Elective on basis of individual developmental needs
) Teaching Roles: Behavioral expectations, their range and content	Holds authority, makes essential decisions with little feedback	Intellectual exemplar and personal mentor	Creates, guides, and directs the range of choices	Varies roles to fit student needs, subject, and current conditions	Provides, constructs, controls, learning setting-not students
) Preconditions for Learning: Maturity level, prerequisite, experience	Linear cumulative view of knowledge emphasizes many prerequisites	Specific prerequisites in language skill and disciplinary bases	Quantitative and language skills	Field experience plus skills	No preconditions to approach
AFFECTIVE, PERSONAL, AND VALUE-RELATED CORRELATES OF THE FIELD:					
) Personality, Cues, and Responses					
) Conditions of Skill and Technique					
) Attitudes, Beliefs, and Moral Implications of Field, Axiology, esthetics and ethics of the discipline					
CONSEQUENCES OF KNOWLEDGE: INTEGRATED AND INFERRED OUTCOMES FROM STUDY IN THE FIELD					
) Cognitive Outcomes: Body of Knowledge, habits of mind	Well structured body of knowledge in a major area of knowledge: synthesis	Structured body of knowledge and technique for inquiry in discipline: analysis	Wide range of skills and techniques: analysis	Knowledge of current practice, specialized analytical skills	Broad range of knowledge with clusters of specialization
) Attitudinal Outcomes	Belief in conferred and established authority. Conservative outlook	Skeptical of authority; respectful of expertise	Belief in conferred authority but sees expertise as serving it	Acknowledges superior authority to direct activity	Doubts all authority
) Feelings and Appreciation					
) Behavioral Patterns					
) Range and Quality of Life Roles Available					

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CONTEXT					
1 SOCIAL & CULTURAL FACTORS:					
a) Societal Functions of Education: To Create 1 Responsible citizenry 2 Cultivated expertise 3 Enlightened populace 4 Developed individual intellect 5 Able workers	Transmit heritage of mankind	Prepare intellectual leadership in classical tradition	Inculcate ablest specialists in science, arts, technology	Prepare for a working position in current world	Search out contemporary subcultural emphases
b) Relation of Education and "Reality"	Education is preparatory to living	Education is a kind of living	Education is a life-long experience	Learning is a product of effective experience	Learning is living
2 ORGANIZATIONAL CLIMATES:					
a) Institutional Climates					
1 Tradition and History of the Institution: It's "Saga"	Centralized decision making, monarchical hierarchy, formalized interpersonal relations	Selective democracy of elite: oligarchy	Bureaucratic, meritocratic combination	Participatory democracy	Egalitarian community consensus sought on decisions
2 Organizational Structure of the Institution e.g. The Land Grant Model	C'lassical college or university-council & scholar/president	Modern University with strong departments; president/scholar	Multi-versity with satellite institutes; president/manager	Community service and Institutes of Technology	"Experimental' institutions
3 Faculty Organization	Strong, integrated, self serving formal Council	Loose but coherent Senate	Temporary but coordinated around issues: College Councils	Federated: Collective bargaining unit, campus community	Pluralistic, mutually respectful form of anarchy
b) Interinstitutional Climates 1 Organization of the disciplinary profession 2 Academic and non-academic components 3 Sectors and boundaries within the profession	External ties with old societies and publications; few lay involvements	Involvement with disciplinary professional societies and publications	Mixed involvement with academic and practi-:ioners, organizations, and societies	Emphasis on participation in business societies and practitioners groups	Ad hoc and marginal organizational ties:
3 FILTERING AND INTERPRETIVE INFLUENCES:					
a) Prevailing Cultural Waves: e.g. "Youth" Phenomenon of the 1960s, Job emphasis of '70s	Academic subculture of low coherence; high acquiescence, little interpretation	Multiple subcultures of "rational" nature: highly interpretive	Subcultures to translate specializations to "real world" and encourage interpretation	Few subcultures designed to link participants to world of "action": imitative rather than interpretive	Individualized
b) Intra-institutional Subcultures					
c) Social Ecology of Campus: Coherence, lines of communication, collective identities, etc.					
FORM					
1 DISTRIBUTION OF FUNDAMENTAL RESOURCES:					
a) Faculty Time: Distribution and weightings among various types of activity					
b) Faculty Expertise: Location of specialized faculty within the Learning Sequence	All faculty teach all levels of students	Faculty expertise, rank, & prestige parallels student levels	"Teaching" expertise separated from "research" expertise and distributed among student levels	Appropriate Expertise allocated to student level where needed	All faculty involved with all levels of students
c) Student Time: Distribution among disciplines and within particular fields	Activity in fixed units--little voluntary action	Little voluntary action: emphasis on discourse	Scheduled into project form: concentrated	Situational emphasis: blocks of time in related activity	Limited scheduling time free study
d) Patterning and Weighting: Levels and tracks, requirements and "packages" identified as meaningful, credit valences	Few courses, equal weightings, strict sequence	Many courses, equal weightings, sequence followed by open chance	Basic course sequence followed by wide range of options	Narrow sequential specialization with four elective options	
e) Recording and Reporting: Courses, majors, minors, general education (labeling problem)	Credits, courses, grades and requirements all interlinked and cumulative	Credits, courses, tied into comprehensive judgments at completion	Non-judgmental records with many default options	"Positive" grading to show only work passed. Credit for non-class experience	Individualized descriptive reports

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2 INSTRUCTIONAL MODES:	Didactic: Single or few presentation forms in rigid format of factual coverage	Philetic: Few presentation forms with concentration on logical principles	Didactic & Heuristic formal presentation supplemented by demonstrations, laboratories	Formal presentations plus independent or individualized options. Experiential base with simulations, internships, etc.	Heuristic: Variety of formats available to student choice
a) Class Size and Composition					
b) Physical Setting					
c) Instructional Strategies: (Joyce & Weil)	Information processing models	Information and social interaction models	Analytical models	Behavior modification models	Person models
d) Alternatives to Formal Study in the Field	Advance placement	"Challenge" exams	Independent study	Credit for related life experience	Credit for any experience
e) Integrative Learning Experiences	Formal papers Comprehensive exam	Papers and Seminars	Projects and reports	Certification exam	Continuous discussion and reorganization of experience
f) Applied Learning Experiences	Observation	Simulation	Internships	Part-time work	
3 DOMINANT EDUCATIONAL PROCESSES	Regularizing ordering	Integrating, constructing	Observing, analyzing, testing	Differentiating, selecting	Diversifying, exploring, personalizing
a) For Students:	Absorbing	Organizing	Integrating	Accumulating	Internalizing
b) For Faculty:	Designing	Presenting	Criticizing	Analyzing	
4 PROXIMATE OUTCOMES EXPECTED	Cognitive quantity increases in set direction	Conceptual fund and ability to handle symbol systems increase	Process emphasized: Ability to identify issues, analyze, and deal with them	Ability to reach "satisfying" decisions and actions	Differentiated growth in variety of forms
a) Cognitive Content increases:	Knowledge of universals and abstractions	Comprehension improves as manifested in ability to interpret, extrapolate, translate knowledge	A sense of how to apply knowledge grows	Capacity to analyse complex aspects of the field increases	Ability to synthesize knowledge around appropriate topics is demonstrated
b) Transition to next phase:	Generally prepared for variety of options	"Academically" prepared for graduate study	Either prepared for advanced study or employment	Prepared for a specific job category	Viewed as "developed" rather than "prepared"

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1980

C -- The Consequences of Decisions: A Philosophy.

One of the advantages of a design approach comes from the neutrality of its components. No one particular instructional system has a clear advantage for all kinds of programs. However, in planning any particular curriculum a decision must be made about the best instructional system for that program. When these choices are all taken together they reflect the philosophy of the curriculum.

This is a very different view than you will encounter in most curriculum planning sessions. There is a tendency to search for a philosophical position first, a goal or mission, and then construct a curriculum to fit. Such an approach suffers the same deficiencies that come with a search for a single comprehensive theory. It is a never ending search.

Viewing the curriculum as a problem in design forces attention to action and decision, not one great decision but many small ones. When they are all made then we can see the philosophic profile that has been created. Obviously adjustments may be made at any time: a map does not force us to travel any particular route, it simply tells us where we are.